capacity at some minimum threshold level in order to obtain a customer base sufficient to support the building of their own facilities.

Therefore, to demonstrate potential deployment in accordance with the *Triennial Review Order*, the ILEC would have to show – for each particular building or transport route -- that the revenues available to a CLEC at that location would be sufficient to overcome the fixed and sunk costs of constructing a facility at that location (taking into account all the location-specific variables listed by the FCC) that affect those costs and revenues. In addition, the ILEC's evidence would also need to show that no other economic and operational barriers exist for the particular location or route in question. The inherent limitations of fixed, low-capacity facilities to generate adequate revenues to cover the high costs of loop deployment make it highly unlikely that any ILEC could make the requisite showing for any individual location or route. And the universal nature of entry barriers such as gaining necessary rights of way, gaining adequate building access, deploying the facilities, and convincing customers to accept the delays inherent in service provided over new facilities, make it even more doubtful that ILECs could provide evidence for *specific* locations that would overcome the FCC's findings of impairment and demonstrate instead that there could be "multiple competitive supply" so that competition can be effectively served by denying CLECs access to unbundled facilities at locations where CLECs have not found it economical or desirable to deploy their own facilities.

VIII. CRITIQUE OF SBC ILLINOIS' POTENTIAL DEPLOYMENT ANALYSIS.

A. <u>HIGH CAPACITY LOOPS</u>

Q90. HAVE YOU REVIEWED SBC'S TESTIMONY CONCERNING THE APPLICATION OF THE POTENTIAL DEPLOYMENT ANALYSIS TO HIGH CAPACITY LOOPS?

A90. Yes, I have reviewed the testimony of J. Gary Smith (SBC Ex. 2.0) at pages 26-38, as well as the testimony of John R. Sander (SBC Ex. 3.0) and W. Karl Wardin (SBC Ex. 4.0).

Q91. WHAT WERE THE CONCLUSIONS OF THE POTENTIAL DEPLOYMENT ANALYSIS AS PROVIDED BY SBC.

A91. SBC has asserted that 749 customer loop locations satisfy the potential deployment analysis for high capacity loops. These 749 buildings were all located in two geographic areas: (1) downtown Chicago and (2) the so-called Oakbrook corridor. The specific customer locations are listed on Attachment 20 to Mr. Smith's loop testimony.

Q92. DO YOU BELIEVE IT IS CREDIBLE THAT THERE ARE SIX TIMES MORE BUILDINGS THAT SBC CLAIMS QUALIFY FOR POTENTIAL DEPLOYMENT THAN SBC IDENTIFIED FOR SELF-PROVISIONING?

A92. No, particularly when one considers that the 749 buildings are all located within two fairly discrete geographic areas, not throughout the entire Chicago LATA. The current scope of CLEC networks represent more than 10 years of laborious efforts by individual companies, who have pieced together their networks building by building, working through the myriad of issues facing companies that perform construction tasks in major city areas. At most of those buildings for which some form of service is being provided, installation of CLEC facilities were most likely economically justified based upon the provision of OC(n) level services. Also, it is likely that the remaining buildings (the ones not served by CLEC facilities) are either not as attractive due to the type of customers in the building, or the competitive providers have been dissuaded from entry due to other barriers such as building access or other building-specific issues. Finally, the current financial environment is such that competitive carriers do not have the same level of available financing as they did in the previous years to justify new construction. It defies the realities of today's telecommunications marketplace – as well as basic common sense -- to believe that, with all of these considerations, CLECs would be able to economically build out to even a small percentage of the buildings listed by SBC for the sole purpose of provisioning only one or two DS3s of capacity or providing dark fiber, let alone six times that number of buildings.

Q93. PLEASE DESCRIBE THE PROCESS SBC USED TO DETERMINE THAT 749 BUILDINGS SATISFIED THE POTENTIAL DEPLOYMENT ANALYSIS FOR HIGH CAPACITY LOOPS

A93. First, SBC made maps for certain wire centers showing where CLECs had deployed fiber rings. SBC then used these maps to identify buildings that it believed were within 300 feet of one of these competitive provider's fiber facilities. To develop this list, SBC used a variety of third party sources, including reports from GeoResults and GeoTel, Inc. From this list of buildings, SBC attempted to identify those buildings that had an annual "telecommunications spend" of $50,000 or more. To obtain an estimate of building spending levels, SBC used data it obtained from Dun and Bradstreet and TNS Telecoms, two other third party market research firms. SBC then simply *assumed* – without any analysis of building-specific factors for potential deployment – that *every one* of the 749 buildings meeting these criteria satisfied the potential deployment criteria.

Q94. DO YOU BELIEVE THAT THE PROCESS SBC USED COMPLIES WITH THE GUIDANCE THE FCC PROVIDED IN THE TRO?

A94. No. In fact, I think this is almost exactly the opposite of what the FCC provided for in the TRO. The FCC made clear that, with respect to both the triggers and to potential deployment analysis, "a more granular analysis should be applied on a *customer-by-customer location basis*." TRO ¶ 328 (emphasis added). It bears repeating that this granular analysis was meant to be conducted on a building by building basis in order to identify those limited instances in which multiple alternative loop deployment was possible even though it had not yet taken place. SBC, however, has attempted to "de-granularize" this analysis by instead developing a list of generic criteria that it then applied to hundreds of customer locations. But these generic criteria do not address or even take into account, the specific factors identified in the TRO. For example, two factors that the TRO requires to be evaluated for each building are (1) availability of rights-of-way and (2) building access restrictions; SBC's testimony does not evaluate these factors for even a single building on its potential deployment list.

Q95. APART FROM THE LACK OF GRANULARITY IN SBC'S ANALYSIS, WHAT ARE SOME OF THE SPECIFIC CRITICISMS YOU HAVE OF SBC'S APPROACH ON LOOP POTENTIAL DEPLOYMENT?

A95. I have several specific criticisms. First, SBC's entire analysis is predicated on the implausible notion that, if one competing provider has fiber "near" a building, other competing providers could then provide access to the building. Second, SBC's use of the 300-foot distance measure as a proxy for potential deployment is flawed and unreasonable. Third, SBC does not analyze any of the building-specific factors specified in the TRO for any of the buildings it has identified. Fourth, the revenue figures SBC uses in its potential deployment are flawed and cannot be used as a substitute for a building-by-building application of the TRO factors, and in all events they are not the appropriate measure of revenues to apply.

Q96. PLEASE EXPLAIN WHY YOU BELIEVE THE PRESENCE OF SOME FIBER NEAR A BUILDING IS NOT SUFFICIENT TO SHOW POTENTIAL DEPLOYMENT.

A96. The buildings that SBC identifies are ones which are within 300 feet of *any* CLEC's fiber in the applicable wire centers. However, the fact that one CLEC may have fiber in the area does not mean that *multiple* CLECs could build customer laterals to all of these building locations using fiber facilities. For example, suppose that carrier X has fiber running near customer location Y. Even accepting all of SBC's other assumptions, this would mean only that carrier X might be able to build a customer lateral to building Y. It does *not* mean that any other CLEC could build a similar customer lateral. Thus, at most, SBC's argument would prove that *one single* CLEC could potentially deploy facilities to a building (which is not correct anyway, for reasons I will discuss below). One competing provider is not enough to satisfy either the self-provisioning or wholesale triggers; it cannot be a sufficient basis to short-circuit the potential deployment analysis. The focus of the potential deployment test is whether *CLECs in general* could overcome the obvious operational and economic barriers to loop construction.

Again, SBC's approach to potential deployment seems to be the opposite of what the TRO provided for because SBC's approach simply turns locations that fail the self-provisioning trigger into locations that qualify for non-impairment determinations based on potential deployment. SBC's "methodology" simply ignores the requirements and criteria for potential deployment that are established in the TRO.

Q97. PLEASE EXPLAIN WHY YOU DO NOT BELIEVE IT IS REASONABLE TO DETERMINE POTENTIAL DEPLOYMENT BASED UPON THE 300-FOOT DISTANCE FACTOR BETWEEN CLEC FACILITIES AND SPECIFIC BUILDINGS?

A97. Despite SBC witness Smith's view that 300 feet is a relatively small distance and comparable to a driveway (although I haven't seen many driveways the size of football fields in downtown Chicago), using distance as the sole gating factor is flawed in that it does not take into consideration the location-specific obstacles that might be located between the CLEC's facilities and the building, especially in a large city such as Chicago. Numerous obstacles and delays almost always occur for projects that involve digging up city streets, and the costs of such endeavors often accumulate to levels much higher than originally expected. Probably the most famous recent example of this is the "Big Dig", a highway renovation project that was recently completed in Boston. That project, which replaced only 7.5 miles of highway, ended up taking 15 years and costing in excess of $14 billion, $10 billion more than originally expected. While this is obviously an extreme example, it demonstrates that construction and installation of facilities over even short distances in city areas can present much greater economic barriers than will constructing facilities over longer distances in rural areas.

Q98. ARE THERE OTHER FLAWS RELATED TO THE USE OF A DISTANCE MEASUREMENT, SUCH AS THE 300 FOOT APPROACH USED BY SBC?

A98. Yes. First, it does not appear that SBC's analysis made a determination as to whether the point on the CLEC's network that is 300 feet from the building would provide a point from which a lateral facility could be extended. If an accessible splicing point, such as a manhole, is not available, the true distance would have to be extended to the nearest splice point. Second, the 300 foot analysis criterion does not take into account whether any type of reasonable access is available between the splicing point and the building. It is not appropriate to presume the availability of necessary conduit without an actual building-specific evaluation for each specific building for which SBC seeks a finding of non-impairment due to potential deployment. Third, even if a building is within 300 feet of a splicing point, SBC's analysis does not provide any information about the availability of building access, which is a critical issue for CLECs seeking to deploy loop facilities to buildings.

Q99. YOU ALSO MENTIONED THAT SBC'S ANALYSIS IS DEFECTIVE BECAUSE SBC DID NOT PERFORM A BUILDING-SPECIFIC ANALYSIS FOR ANY OF THE 749 BUILDINGS CONSISTENT WITH THE FACTORS THAT ARE SPECIFIED IN THE TRIENNIAL REVIEW ORDER. CAN YOU PLEASE EXPLAIN THIS POINT?

A99. The testimony of SBC witness Sander indicates that SBC analyzed the buildings as a group instead of individually. In his testimony, Mr. Sander discusses SBC's rationale as to how each of the FCC's requirements for potential deployment have been satisfied. As SBC did not perform a building-specific analysis, and collected no information about any of the buildings, Mr. Sander is reduced in each case to simply asserting that no obstacles or barriers exist for every building. For example, when asked the question "Is right-of-way access a concern in Downtown Chicago?" Mr. Sander's response is "No, not to my knowledge." When asked about building access, Mr. Sander acknowledges that "Over the past several years, building owners have become more prone to ask for a formal access arrangement with carriers, including SBC Illinois." In spite of this acknowledgement, Mr. Sander apparently just assumes that there are no building access issues in any of the 749 buildings, even though he just acknowledged that even SBC has been forced to enter into formal arrangements with building owners. He relies on the lack of identification by CLECs, in discovery responses, of situations in which they have had problems with building access, thereby ignoring the fact that CLECs may not have any information about a particular building because they have never sought to provide facilities to the building.

Q100. WHAT TYPE OF COST EVIDENCE DID SBC PROVIDE TO SUPPORT ITS POTENTIAL DEPLOYMENT CLAIMS?

A100. SBC relied upon a cost study developed by the Cambridge Strategic Management Group that was filed with the FCC by the United States Telecommunications Association, and came up with a minimum annual revenue threshold as a proxy for building-specific costs. SBC witness Wardin also provided some information related to the Illinois TELRIC costs for DS3s and dark fiber, although it appears that this information is used only as a check on the Cambridge Study.

Q101. IS IT APPROPRIATE FOR SBC TO USE THIS "CAMBRIDGE STUDY" TO DETERMINE BUILDING COSTS IN ILLINOIS?

A101. No. The Cambridge study does not purport to examine the costs associated with constructing facilities to individual buildings. Instead, it appears that the study is based upon some general assumptions about CLEC costs, which were not disclosed in the study. Those assumptions were then adjusted for differences between cities based primarily upon wage data.

Q102. DOES THE CAMBRIDGE STUDY ANALYZE ANY ILLINOIS-SPECIFIC DATA?

A102. No. The "Cambridge Study" performs a statistical analysis on 6 cities: Greenville, South Carolina, Dayton, Ohio, St. Paul, Minnesota, Tucson, Arizona, Cleveland, Ohio, and Seattle, Washington. The author of the study even acknowledges that the "large" cities in my sample are not among the twenty largest cities in the United States".

Q103. DID THE CAMBRIDGE STUDY INCLUDE ANY BUILDING SPECIFIC COSTS AT ALL?

A103. No.

Q104. DID THE CAMBRIDGE STUDY PURPORT TO ANALYZE ANY OF THE NINE FACTORS REQUIRED BY THE FCC?

A104. No. The "Cambridge Study" merely acknowledges that a CLEC will incur incremental capital and operating expenses when extending its network, but it provides no quantification or estimation of these costs, and it does not provide information that addresses any others of the nine factors specified by the *Triennial Review Order* for the potential deployment analysis.

Q105. IS THE COST INFORMATION PROVIDED BY SBC WITNESS WARDIN MEANINGFUL IN THE CONTEXT OF THE FCC'S POTENTIAL DEPLOYMENT REQUIREMENTS?

A105. No. Mr. Wardin provided cost information that was used in developing TELRIC rates in Illinois. It is important to remember that, unlike typical costing proceedings used to establish UNE rates, the potential deployment analysis requires an evaluation of costs specific to CLECs, who do not have SBC's scale, access to buildings, and access to rights-of-way.

Q106. FROM A PRACTICAL PERSPECTIVE, DOES THE COST INFORMATION PROVIDED BY MR. WARDIN MAKE SENSE IN THE CONTEXT OF POTENTIAL DEPLOYMENT?

A106. No. Mr. Wardin's analysis assumes that the total cost of extending fiber optic facilities into a building is under $1,500. Obviously, this assumes no construction of facilities whatsoever is required for any building, as construction projects of this type can often run into the hundreds of thousands of dollars depending upon the circumstances.

Q107. IS SBC'S USE OF A BUILDING'S ESTIMATED TOTAL TELECOMMUNICATIONS SPENDING, IN THIS INSTANCE $50,000, AN APPROPRIATE WAY OF IDENTIFYING BUILDINGS FOR THE POTENTIAL DEPLOYMENT ANALYSIS?

A107. No. The appropriate approach should be to determine whether a building has sufficient demand for DS3 or dark fiber loops to allow for multiple, competitive supply into the building. A large building (or even a single customer in that building) could easily surpass the $50,000 threshold without having any demand whatsoever for DS3 or dark fiber loops. SBC should have the capability based upon its own customer records to determine which buildings actually have a demand for the specific capacity levels, the number of which should be significantly less than the quantity meeting the $50,000 threshold.

Q108. IS IT APPROPRIATE TO USE THE $50,000 ESTIMATED TOTAL BUILDING TELECOMMUNICATIOS SPENDING AMOUNT AS A POTENTIAL REVENUE STREAM CLECS COULD EXPECT TO RECEIVE TO OFFSET THEIR COST OF LOOP CONSTRUCTION?

A108. No. Consistent with the capacity-specific nature of the analysis, the only revenues that should be considered are those specific to the building of an individual DS3 or dark fiber loop. This is consistent with the FCC's determination as mentioned above that" "the potential revenue stream associated" with lower-capacity facilities "is many times smaller than that" of a higher-capacity facility. TRO ¶ 320 n.945. And notably, the view here must be of a carrier that has the opportunity to obtain access to UNEs (otherwise an impairment review is unnecessary). Thus, since a requesting carrier may only obtain up to 2 DS3s at UNE rates for any customer location, the question is whether that carrier – not a carrier seeking to serve a larger demand – could afford to self-deploy its own facilities to serve at that level. Accordingly, any reference to a "total building revenue" is inappropriate. That figure would certainly contain revenues other than those for the specific one or two DS3 that a requesting carrier could obtain as a UNE, and can be expected to include potential OC(n) circuits, long distance service, and data services, and improperly skews such analysis.[2] Moreover, this revenue figure does not consider that

[2] In all events, if the total revenues for such services were to be included in a potential deployment analysis, without access to specific revenues available from specific uncommitted customers in a location, the Commission can only anticipate that they would generate average

enterprise customers in commercial buildings are generally tied up in long-term contracts that make them economically unavailable for a competitive provider.

Since loops are used as an input to other services and represent only a small portion of the facilities needed to provide entire high capacity services to enterprise customers, it would be both reasonable and consistent to measure the costs of provisioning such facilities against the revenues that a CLEC could earn by providing DC3s or dark fiber as a wholesale offering. It is also consistent with CLEC "build or buy" analyses for an individual building. For example, a CLEC's decision to replace an existing special access line into a building with the CLEC's own DS3 loop is driven solely by whether the cost to provision its own loop is less than the cost of purchasing the special access line.

Q109. HAVE YOU BEEN ABLE TO IDENTIFY AN ESTIMATE OF THE REVENUE A CLEC COULD EXPECT TO OBTAIN FROM TELECOMMUNICATIONS USERS IN A BUILDING IF IT SELF-PROVISIONS A SINGLE DS3 LOOP IN ILLINOIS?

A109. Yes. SBC's interstate tariff provides a monthly rate for a DS3 channel termination that varies both by density zone and by contract term. The monthly rates for a DS3 vary from $960 per month for a 5-year term to $2,370 per month for a 1 year term for the densest rate zone. Using the 3-year contract rate of $1,200 per month would result in an annual revenue for a DS3 of $14,400.

Q110. ARE YOU AWARE OF ANY OTHER ANALYSES THAT PRESENT A MORE REALISTIC DEPICTION OF THE COSTS AND NECESSARY REVENUES FOR A CLEC TO EXTEND ITS NETWORK INTO A NEW BUILDING?

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revenues for services provided over such facilities. SBC does not offer proof of either. Moreover, if total revenues from the use of a loop are to be considered, then the analysis must consider all of the costs of providing all services over such facilities. SBC fails to provide this evidence as well.

A110. Yes. On November 25, 2002, AT&T filed a study with the FCC, in conjunction with the FCC's Triennial Review proceedings, which analyzes the costs and required revenues necessary to justify extending a typical CLEC's network to a new building. The study is included as **Attachment 5** to my testimony. I have reviewed the AT&T study and, based on my experience, I find it presents a more thorough and realistic analysis of the costs that would be encountered and the revenues that would be considered by a CLEC in determining whether to extend a typical CLEC network into a new building than the analysis used by SBC in this case.

Q111. WHAT WERE THE CONCLUSIONS OF THE AT&T STUDY AS IT PERTAINS TO UNBUNDLED LOOPS?

A111. The study concluded that CLECs generally need to be able to provision at least 3 DS3's into a given building before the cost of constructing the loops can be recovered. This is consistent with the FCC's conclusion that no impairment exists for OC(3) and above loops.

Q112. HOW DO YOU PROPOSE THAT THE AT&T STUDY BE USED BY THE COMMISSION IN EVALUATING SBC'S POTENTIAL ANALYSIS?

A112. The AT&T study supports the position that it is generally not economic for CLECs to build for the provision of a single DS3 or dark fiber loop to a building, and that any building for which SBC claims potential deployment must be treated as a unique exception, which must be supported by a full, building specific analysis.

Q113. DID SBC PROVIDE EVIDENCE OF ALTERNATIVE LOOP DEPLOYMENT FOR THE 749 BUILDINGS ON ITS LIST?

A113. SBC only claimed that alternative loops were in existence for 115 of the 749 locations. The remaining 634 buildings are represented as merely being within 300 feet of competitive facilities. Obviously, SBC's "corridor" approach vastly expands the list of locations for which it claims potential deployment is satisfied; it does so entirely by presumption, however, not on the basis of a factual showing – much less a showing specific to each location.

Q114. SHOULD ANY OF THE BUILDINGS LISTED BY SBC QUALIFY FOR POTENTIAL DEPLOYMENT BASED UPON SBC'S SHOWING IN THIS CASE?

A114. No. SBC's analysis clearly does not meet any of the FCC's criteria for items the Commission must evaluate, and therefore this Commission should find that SBC has not satisfied the potential deployment analysis for any of the buildings listed in the attachments to the Smith testimony.

Q115. HOW SHOULD SBC HAVE DONE ITS POTENTIAL DEPLOYMENT ANALYSIS?

A115. SBC should have performed an individual discounted cash flow analysis for each building that would reflect the appropriate costs and revenues associated with the provision of no more than two DS3 loops or dark fiber loops. The analysis would review characteristics specific to the individual building, including the FCC's nine factors. Additionally, the analysis would evaluate whether potential customers actually exist in the building, or whether those customers are locked into long term existing contracts (and therefore would not represent potential customers or revenues for the CLEC, at least for a number of years) or whether they will be available for competitive provision. Also, SBC must establish that there are enough customers in each building to support multiple self-providers.

B. <u>DEDICATED TRANSPORT</u>

Q116. HAVE YOU REVIEWED SBC'S TESTIMONY CONCERNING THE APPLICATION OF THE POTENTIAL DEPLOYMENT ANALYSIS TO DEDICATED TRANSPORT?

A116. Yes, I have reviewed the testimony of J. Gary Smith (SBC Ex. 1.0) at pages 37-43.

Q117. WHAT WERE THE CONCLUSIONS OF THE POTENTIAL DEPLOYMENT ANALYSIS AS PROVIDED BY SBC.

A117. SBC has asserted that 283 of the 285 transport routes that it claims satisfy either the self-provisioning and/or wholesale triggers should also receive non-impairment findings from the Commission on the basis of potential deployment. The specific customer locations are listed in all rows of Attachment 13 except rows 265 and 282.

Q118. PLEASE DESCRIBE THE PROCESS SBC USED TO DETERMINE THAT THESE 283 TRANSPORT ROUTES SATISFY THE POTENTIAL DEPLOYMENT ANALYSIS FOR DEDICATED TRANSPORT?

A118. SBC took all but two of the routes (and it does not explain why it eliminated these two routes) that it claimed satisfied the wholesale trigger and simply concluded that, since it contended that there were two competing providers on each route, that potential deployment along those routes was possible. The essence of SBC's position is that if a route fails to meet the wholesale trigger because some carriers do not actually offer widely available wholesale service, SBC can circumvent the trigger through a potential deployment analysis.

Q119. DO YOU BELIEVE THAT SBC'S POTENTIAL DEPLOYMENT ANALYSIS FOR DEDICATED TRANSPORT IS PROPER?

A119. No, for several reasons. First, as I have explained above in my critique of both the self-provisioning and wholesale triggers, SBC has greatly overstated the number of existing dedicated transport routes of competing providers. Second, as I have also explained above with respect to self-provisioning, SBC cannot satisfy the potential deployment analysis unless it can show that multiple carriers have the potential to self-provision transport at the quantities of capacity levels that would otherwise be available as UNEs. SBC cannot, for example, rely on the existence of OC(n) level transport routes to show that potential deployment is possible at lower capacity levels. A proper analysis needs to reflect the FCC's specific decision that CLECs are impaired without unbundled access to dark fiber transport, DS1 transport, and twelve or fewer DS3s of transport along any given route. *See* TRO ¶ 388.

Q120. HAS SBC PRESENTED ANY DEMONSTRATION THAT THE ROUTES MEET THE FCC'S REQUIREMENTS FOR ECONOMIC VIABILITY, OR THAT THEY HAVE CONSIDERED THE NINE FACTORS OUTLINED BY THE FCC?

A120. No. SBC has provided no analysis of any kind to support its potential deployment claims for dedicated transport. SBC witnesses Sander and Wardin did not provide any supporting information or analysis for dedicated transport. On this basis alone, any potential deployment claims for these routes should be rejected.

Q121. SO WHAT DO YOU CONCLUDE ABOUT SBC'S POTENTIAL DEPLOYMENT ANALYSIS FOR DEDICATED TRANSPORT?

A121. I have concluded that SBC has not satisfied its burden of proving potential deployment at any capacity level for any of the 283 routes for which it seeks such a finding.

IX. THE COMMISSION SHOULD CONSIDER CERTAIN TRANSITION ISSUES IF THE COMMISSION MAKES FINDINGS OF NON-IMPAIRMENT.

Q122. ARE THERE TRANSITION ISSUES THAT THE COMMISSION MUST ADDRESS IF IT MAKES ANY FINDINGS OF NON-IMPAIRMENT IN THIS CASE?

A122. Yes. If the Commission finds that requesting carriers are not impaired without access to unbundled transport and/or loops on any particular route or at any customer location, then the Commission must address various transition issues. Specifically, in the *Triennial Review Order*, the FCC required state commissions to establish an "appropriate period for competitive LECs to transition from any unbundled [loops or transport] that the state finds should no longer be unbundled." *TRO* ¶¶ 339, 417.

Q123. WHAT PRINCIPLES SHOULD GUIDE THE SETTING OF AN APPROPRIATE TRANSITION PERIOD?

A123. At a minimum, the Commission should set a transition period that provides competing carriers a reasonable period of time to self-provision the loops or transport in question and continue to offer service using UNEs pursuant to existing contracts. The latter is essential because services to enterprise customers are contract-based and generally do not allow the provider to terminate or modify the contract based upon sudden cost increases. Without a transition period, CLECs and their customers would face significant disruptions to their services if access to unbundled loops were disconnected or migrated to other services.

Q124. WHAT IS YOUR RECOMMENDATION REGARDING THE SETTING OF A TRANSITION PROCESS?

A124. I recommend that the Commission develop a multi-tiered transition process such as the one applicable to mass-market switching. First, there should be a transition period of nine months in which CLECs may order new UNEs for locations and routes where the Commission found a trigger is met. Second, CLECs should have a transition period equal to that applied to line sharing and mass-market switching, which provides a 3-year transition process, with one-third transitioned within 13 months, and another one-third transitioned within 20 months. Third, all loop and transport UNEs should continue to be made available at TELRIC/TSLRIC rates until migrated.

Q125. SHOULD THE COMMISSION ESTABLISH AN EXCEPTION PROCESS FOR LOCATIONS AND ROUTES WHERE THE TRIGGERS HAVE BEEN MET?

A125. Yes. If a carrier demonstrates that it is attempting in good faith to construct facilities for a location or route for which UNEs are no longer available and that it is incurring a specific problem that makes construction within the applicable timeframe unachievable (e.g., issues with rights-of-way or building access), it should be permitted to seek an exception from the Commission consistent with the problem it faces. The CLEC should be permitted to continue to purchase the identified facility as a UNE until the Commission acts on its request.

Q126. ARE THERE ADDITIONAL TRANSITION ISSUES THE COMMISSION SHOULD CONSIDER?

A126. Yes. The Commission should ensure that SBC maintains an adequate process for ordering and provisioning combinations of loops and transport, in situations where one or both network elements of the combination are no longer available as unbundled network elements. In the *Triennial Review Order*, over ILEC objections, the FCC specifically stated that competing carriers are permitted to continue to have access to combinations of loops and transport regardless of whether one of the network elements are no longer available on an unbundled basis. *See TRO* ¶ 584. Similarly, the Commission should ensure that SBC has adequate billing processes and procedures in place for CLECs to purchase delisted network elements, whether individually or in combination.

Q127. DO YOU HAVE ANY OTHER COMMENTS REGARDING POTENTIAL TRANSITION ISSUES?

A127. Yes. I am advised that Illinois may have statutory provisions that require SBC to offer unbundled network elements even if the Commission reaches a finding of non-impairment in its TRO cases with respect to those UNEs. I am not knowledgeable with respect to those Illinois state law requirements and have not factored them into my testimony. The only point I want to make here is that my testimony on transition issues should not be construed as suggesting that any such state law requirements should be ignored. I presume that if the Commission reaches findings of non-impairment with respect to any of the UNEs at issue in this case, it will also evaluate whether state law nonetheless requires SBC to continue to offer those UNEs to CLECs.

Q128. DOES THIS CONCLUDE YOUR TESTIMONY?

A128. Yes, it does.

G.Ball

Attachment 1

Public

G.Ball

Attachment 2

Public

G.Ball

Attachment 3

Public

G.Ball

Attachment 4

Public

AT&T

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November 25, 2002

Ms. Marlene Dortch
Secretary
Federal Communications Commission
445 12th Street, SW, Room TWB-204
Washington, DC 20554

Re: Notice of Oral Ex Parte Communication, In the Matter of Review of the Section 251 Unbundling Obligations of Incumbent Local Exchange Carriers, CC Docket Nos. 01-338, 96-98 and 98-147

Dear Ms. Dortch:

In recent *ex partes*, AT&T has stated that the absolute minimum "crossover" point at which it becomes economically rational for a requesting competitive carrier to consider constructing its own interoffice transport facilities is reached when the carrier can aggregate approximately 18 DS3s of *total* traffic in a Local Serving Office (LSO), including all local, data, exchange access and interexchange traffic routed through the office. At Staff's request, AT&T has developed a detailed explanation of the methodology used to develop that estimate which can be found in Attachment A to this letter.

One of the critical points to note is that in developing the "crossover" point, AT&T did *not* attempt to assess the ILECs' TELRIC costs of providing transport to themselves and their affiliates (and thus the actual cost disadvantage that requesting carriers face in using such facilities to offer services that compete with the ILECs' services). Rather, AT&T compared the costs of provisioning its own transport to its average costs for purchasing ILEC *special access services*, which are admittedly *not* offered at cost-based rates. Indeed, they are priced at exorbitant levels. Thus, this analysis is highly favorable to the ILECs. Given that TELRIC costs are actually between half and two-thirds of the prevailing special access rates, the crossover point for facilities construction necessary for a competitive carrier not paying special access rates to achieve cost parity with the ILECs is between 28 and 36 DS3s of total traffic. *See* Attachment A.

As is also obvious from Attachment A, transport construction represents a high fixed cost. Moreover, nearly two-thirds of interoffice transport costs are fixed.[1] Thus, a carrier cannot be expected to begin construction of its own transport facilities until it is reasonably certain that it will have the necessary scale to recover its construction costs.[2] Otherwise, such construction would simply be wasteful.

In this regard, it is essential that CLECs be able to achieve a cost structure comparable to the ILEC's even where the incumbent's existing prices are well above costs. Where a CLEC has significantly higher costs than the ILEC, the CLEC knows that the ILEC could simply drop its prices below the CLEC's costs, but still above the ILEC's costs, and remain profitable. But by setting prices below the CLEC's costs, the ILEC would make it impossible for the entrant to remain economically viable. The prospect of such a pricing strategy is particularly high where, as is the case for services provided to businesses, the ILEC can price discriminate. This allows the ILEC to lower prices selectively, *i.e.*, only to those customers that could potentially be served by the CLEC, and thus to keep prices high for all other customers. Thus, because transport constitutes a sizeable percentage of the overall cost of telecommunications services, facilities-based entry is generally viable only where a CLEC can self-deploy transport at a cost that is not well in excess of the ILEC's costs.[3]

Finally, a carrier's analysis of whether to construct a fiber backbone ring (and thus provide its own transport) is very different from its analysis as to whether to build a Building Ring or a Customer Lateral off an existing Building Ring to provide the equivalent of a loop for large customer buildings. Accordingly, the amount of committed traffic necessary to support the construction of loops for large business customers – which AT&T has indicated is about 3 DS3s of traffic – is substantially less than the amount needed to support the construction of a backbone ring. The assumption here is that the existing transport ring is justified for other purposes and that the loop is addressed by incrementally attaching a small ring to serve a specific building and, where necessary, a short lateral extension. In support of AT&T's claim that 3 DS3s of traffic is required to support an economically rational lateral fiber build-out, and to ensure that the record is complete, AT&T is also submitting with this *ex parte* a detailed discussion regarding AT&T's estimation of loop construction costs, which is appended as Attachment B.

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[1] *See ex parte* letter from C. Frederick Beckner to Marlene Dortch dated November 14, 2002, attaching white paper prepared by Professor Robert D. Willig entitled "Determining 'Impairment' Using the *Horizontal Merger Guidelines* Entry Analysis," p. 13.

[2] *Id.* at 5.

[3] *Id.* at 7-8.

Consistent with Commission rules, I am filing one electronic copy of this notice and request that you place it in the record of the above-referenced proceedings.

Sincerely,

Joan Marsh

cc: Michelle Carey
Thomas Navin
Robert Tanner
Jeremy Miller
Dan Shiman
Julie Veach
Don Stockdale

Attachment A

DETAILED DESCRIPTION OF CLECS' COLLOCATION AND BACKHAUL INFRASTRUCTURE COSTS

Introduction:

A CLEC seeking to enter the market using its own facilities must incur collocation and transport costs to "backhaul" traffic from an ILEC serving office where its customers' loops terminate to its own switch. In a recent filing, AT&T explained that the costs associated with collocation and backhaul average about $33,000 per month and that at least 18 DS3s in traffic volume is required to make such investment prudent. This document provides detailed information on how these figures were developed.

In simple terms, collocation costs arise from three key sources: (1) the backhaul facility, (2) the collocation space itself, and (3) the equipment placed within the collocation. The derivation of costs for each component is described below.

Backhaul Facilities:

Backhaul facilities comprise the largest component of a CLEC's infrastructure costs. These include the costs of deploying an interoffice fiber facility in a ring architecture. The absolute cost of such a ring is predominantly a function of the length of the fiber cable, the nature of the structure employed to support the cable (aerial/buried/underground) and the density zone where the fiber facility is deployed. The number of strands deployed impacts the carrier's costs to only a minor degree.[1]

The following table lists the key assumptions underlying AT&T's calculation of structure costs and identifies the HAI material discussing the derivation of the input cost:

Item	Aerial	Buried	U/G	ref (HAI 5.2)
Placement/ft		$ 1.77	$ 16.40	p.102
Added Sheathing/ft		$ 0.20		p.102
Conduit			$ 0.60	p.102
Pull Box (per ft, 1 per 2000 ft)			$ 0.25	p.104
Poles (per ft, 1 per 150ft)	$ 2.78			pp.104-105
U/G excavation/restoration			$ 23.74	p.140
Buried excavation/restoration		$ 6.71		p.143
Total construction	$ 2.78	$ 8.68	$ 40.99	

[1] In fact, the variable cost per fiber strand is $0.032/foot (See HAI 5.2 inputs, page 100) and the average cost of the cable (installation and engineering) is about $1.00 per foot. In sharp contrast, the cost of supporting structures for a cable can be as high as $45/foot (for buried cable) or $75/foot (for underground cable). For the purposes of analysis, although large quantities of dark strands would be deployed with the initial build, no cost of this dark capacity is attributed to the interoffice transport.

The buried and underground (U/G) placement costs in the above table are derived from the HAI model input data. They represent a weighted average of the four highest density zones in the model. These zones were selected because they are the zones covering more metropolitan areas, where CLEC facility construction is most likely to occur first. This is also consistent with the RBOCs' data on existing placements of fiber-based collocations.[2] The following weightings were applied by density zone:

Weighting Factor	
Density Zone	Weighting
0-5	0.00%
5-100	0.00%
100-200	0.00%
200-650	0.00%
650-850	0.00%
850-2250	65.00%
2250-5000	20.00%
5000-1000	10.00%
>10000	5.00%

The weighted unit costs were developed by multiplying the density zone weighting and the appropriate structure placement unit cost (note that the aerial placement was not a function of density zone). The placement unit costs employed and the resulting weighted averages are shown below:

Buried Excavation, Installation, and Restoration (p.143)	
Density Zone	Cost/ft
0-5	$ 1.77
5-100	$ 1.77
100-200	$ 1.77
200-650	$ 1.93
650-850	$ 2.17
850-2250	$ 3.54
2250-5000	$ 4.27
5000-1000	$ 13.00
>10000	$ 45.00

Minimum	$ 1.77
Maximum	$ 45.00
Employed	$ 6.71

U/G Excavation, Installation, and Restoration (p.140)	
Density Zone	Cost/ft
0-5	$ 10.29
5-100	$ 10.29
100-200	$ 10.29
200-650	$ 11.35
650-850	$ 11.88
850-2250	$ 16.40
2250-5000	$ 21.60
5000-1000	$ 50.10
>10000	$ 75.00

Minimum	$ 10.29
Maximum	$ 75.00
Employed	$ 48.90

[2] The RBOC UNE Fact Report (page III-2, Table I) shows that 13% of the RBOCs' wire centers have fiber collocators present. The cut off for the top 13% of RBOC offices is in the range of 36,000 lines. Given that loops are generally less than 3 miles in length, a central office service area will be about 27 square miles (or less in metropolitan areas). Thus the RBOCs' own data show that CLEC facility builds are occurring in areas where line density is no lower than 36,000/27, or no less than about 1,400 lines per square mile. Thus, using the entire 850-2250 line density zone is conservative.

Because structure proportions vary by density zone, it was necessary to establish the weighted average structure presence in order to develop a single weighted average unit cost. The structure proportion by density zone was obtained from HAI 5.2 inputs and are shown below:

Fiber Feeder Structure Proportions (HAI 5.2 p/59)			
density zone	aerial	Buried	U/G
0-5	35%	60%	5%
5-100	35%	60%	5%
100-200	35%	60%	5%
200-650	30%	60%	10%
650-850	30%	30%	40%
850-2250	20%	20%	60%
2250-5000	15%	10%	75%
5000-1000	10%	5%	85%
>10000	5%	5%	90%

These proportions were then multiplied by the above density zone weighting and yielded the following weighted presence of structures for the purposes of the study:

Weighted Structure Distribution			
Density Zone	Aerial	Buried	U/G
0-5	0.0%	0.0%	0.0%
5-100	0.0%	0.0%	0.0%
100-200	0.0%	0.0%	0.0%
200-650	0.0%	0.0%	0.0%
650-850	0.0%	0.0%	0.0%
850-2250	13.0%	13.0%	39.0%
2250-5000	3.0%	2.0%	15.0%
5000-1000	1.0%	0.5%	8.5%
>10000	0.3%	0.3%	4.5%
Weighted	17.3%	15.8%	67.0%

The cost of the fiber cable placed within the structure was also derived from HAI inputs. Fiber feeder cost were used as a proxy (see HAI 5.2 inputs, page 100):

	Fixed (per cable)/foot		Variable
	Installation	Engineering	per strand
Buried	$ 0.970	$ 0.040	$ 0.030
Aerial	$ 0.880	$ 0.040	$ 0.037
Underground	$ 1.020	$ 0.040	$ 0.032

Finally, it was necessary to establish the lives for the various types of facility placement, the salvage and the annual maintenance cost in order to quantify the full cost of the conductor. These inputs are listed below, together with the source:

Item	Aerial	Buried	U/G	ref (HAI 5.2)
Life	26.14	26.45	25.91	p.129
Salvage	-17.5%	-8.6%	-14.6%	p.129
Maintenance	0.7%	0.8%	0.6%	FCC Synthesis Model Input

In order to generate a single set of factors covering the three alternative structures, the individual results were combined as a weighted average. This was accomplished by weighting each unit cost and the salvage, life and maintenance factor by the proportion of structures in the density zones under consideration. This was done by using the weighted average structure distribution developed above.

The following elements were the resulting weighted element inputs:

Weighted Life		26.03	
Weighted Salvage		-14.1%	
Weighted Maintenance		0.67%	
Total Installed Cost	$	30.34	per foot
	$	0.033	per strand per foot

In order to quantify the investment, the total length of cable and the total number of strands needed to be specified. For the analysis, an average span cost assignment equivalent to 8.94 miles was employed, based upon AT&T's experience.[3] Thus, the total assigned investment is $1.435 million per span.[4] The associated monthly maintenance expense is 0.67% of the investment amount assigned to the node divided by 12, or $798 per month per node.[5]

The monthly capital recovery was amortized over the life of the investment after the investment was grossed-up for the net salvage. A 14.24% cost of money was employed, which is very conservative, as it does not reflect the higher risk associated with the CLEC

[3] By the end of 2001 AT&T had deployed 17,026 route miles of local fiber in which 1,905 spans were active (unique point pairs). Accordingly, the average route miles per active span in AT&T's network is 8.94 miles. While this does not mean that each physical segment is that length, it provides a reasonable means to allocate, among active uses, the cost of a shared facility.

[4] The calculation is (8.94*($30.34 + 2*.033)*5280) for a total of $1.435M.

[5] The calculation is ($1.435M*0.67%)/12.

operations (compared to the 10% cost of money assumed for the incumbents).[6] These factors yielded a monthly investment recovery cost of $19,937 for the facility.[7] The total monthly costs for the facility, including maintenance, is $20,806 per month. Another 5% was added to account for non-income tax coverage requirements for a total of $21,771 per month.

Collocation Space:

Collocation costs are simply the costs associated with renting and securing conditioned Central Office space within an ILEC office. The collocation space is the area where the CLEC places its transmission equipment and terminates its interoffice facility for cross-connection to other interoffice or loop facilities. The collocation costs are comprised of two main components: (1) the cost of initially preparing and securing the space, and (2) the on-going cost of renting the space (which not only includes the physical space but also heating, ventilation, air conditioning and power).

The space preparation cost is treated as an investment and recovered over the life of the equipment placed within the collocation. For the purposes of this analysis, 10.24 years was employed, which is the average useful life of digital circuit equipment (see HAI 5.2 inputs, page 129). The same cost of money and treatment of taxes employed for the facility analysis above was utilized here as well. Neither gross salvage nor cost of removal were assumed.

Because HAI inputs are oriented to ILEC operations, no collocation costs are reflected as cost inputs. Accordingly, internal estimates of collocation preparation costs were employed. Internal estimates indicated that the preparation costs are in the range of $200,000 to $250,000. This, in turn, yields a $3,488 monthly cost for the preparation alone.

The monthly physical collocation rental costs were developed from ILEC billing to AT&T. When analyzed on the LEC-LATA level, the average monthly expense was $4,083 although the true mean could be expected to lie anywhere in the range of $3,579 to $4,586 (at a 95% level of confidence). The average figure was employed for the analysis.[8] Accordingly, the monthly costs attributable to collocation in total were $7,950 per month after taking into account taxes other than income taxes.

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6 For simplicity in the study, a pre-tax cost-of-money was employed. The figure is entirely consistent with the ILEC cost of money of 10.01% employed in the HAI model. The 14.24% cost of money is derived by the following equation: %debt*cost of debt+%equity*cost of equity/(1-effective income tax rate). In this instance the % debt was 45%, the cost of debt was 7.7%, the cost of equity was 11.9% and the effective income tax rate was 39.25%.

7 The calculation was the EXCEL PMT function: @PMT((14.24%/12),(26.03*12),(($1.435M)*(1-(-14.1%)) . The multiplication by 1.1418 grosses the initial investment up for gross salvage less cost of removal which, in this case, is negative.

8 As with other expense, this figure was increased by 5% to account for taxes other than income taxes.

Transmission Equipment:

When operating at the interoffice transport level, there is relatively little equipment placed within the collocation. The necessary equipment includes: optical path panels (to terminate and cross-connect the fiber facility), optical multiplexers, and power distribution (e.g., power filtering and fuses) equipment.

The optical path panel costs are described in HAI 5.2 inputs (p.97). The panels cost $1,000 each, and the cost of cross–connecting to the equipment is $60/strand. In this instance, 2 cross-connections are required per panel (one in and one out) and 2 panels are employed (one for each strand to assure no single point of failure). Accordingly, the capital investment for the panels is $2,240.

The HAI input lists the investment associated with an optical multiplexer (see page 96). The base unit cost is $40,000 (12 DS3 capacity) and the fully equipped unit cost is $50,000 (48 DS3s). Thus, the investment is $40,000, $43,333.33, $46,666.67 or $50,000 depending upon whether 12, 24, 36, or 48 DS3s are in service. This is the only aspect of the investment that is demand sensitive (i.e., if fewer than 48 DS3s are assumed) but this amounts to little more than $3 per DS3. Two multiplexers are assumed to provide redundancy and, as set forth in HAI 5.2 inputs, it is assumed that there is $1,760 invested to engineer, furnish and install each multiplexer and associated optical panel (see page 97). The total investment in the optical multiplexers (24 DS3s assumed) is $90,187.[9]

The installed cost of the last remaining equipment item – the battery distribution fuse bay (BFDB) – is estimated at $62,500.[10]

The total installed equipment cost is therefore $2,240 for the distribution panels, $90,187 for the multiplexers and $62,500 for the BFDB, yielding a total of $154,927. Amortizing this amount over the average useful life of circuit equipment, applying a 1.69% net salvage (HAI 5.2 p 130) and the same cost of money as above, yields an investment recovery cost of $2,443 per month. Maintenance costs are derived by applying a 2% annual maintenance factor (see FCC Synthesis Model for circuit equipment) to the $154,927 gross investment (with the result divided by 12), for a maintenance cost of $258 per month. Combining these two figures and providing for 5% non-income tax related costs yields a total cost of $2,836 per month.

Rationale for the 18 DS3 Minimum:

Adding all of the above figures yields a monthly average cost of $32,557. Given that the monthly costs of facility-based collocation are effectively insensitive to volume, the average unit cost is simply the $32,557 monthly figure divided by the number of DS3s in service.

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[9] 2*(43,333.33+1760)

[10] This is an internal estimate, because there is no equivalent identified in the HAI inputs.

Assuming that unbundled transport is not available as an unbundled network element, and in the absence of market-based competition for connectivity between the necessary points, a CLEC's only practical alternative to building its own facilities is to use ILEC special access service. In today's market, given the continuing imposition of use and commingling restrictions, this special access would be likely be bought under a term plan of either three or five years. Assuming that the special access interoffice mileage would be equivalent to the average span, then a comparison of alternatives is possible. Note, however, that this is *not* a comparison between actual ILEC costs for existing transport facilities and anticipated CLEC costs for new construction. Rather, it is a comparison between anticipated CLEC construction costs and ILEC special access rates, which are admittedly well above the ILEC's costs.

AT&T's experience is that a DS3 interoffice facility plus one channel termination[11] will cost approximately $2,363 per month under a 36-month term agreement and $1,780 per month under a 60-month term agreement. Thus, at least 14 DS3 would be required to break-even compared to a 36-month term special access rate and at least 18 DS3s would be required compared to a 60-month term special access rate. Given that the collocation was assumed to have a 10-year useful life, comparison to the 60-month term agreement was judged most relevant, making the 18 DS3 figure the appropriate comparison.

In fact, AT&T has demonstrated that special access is priced (exorbitantly) well above economic cost. Further, AT&T has demonstrated that a carrier cannot viably enter a local market on a facilities-basis if it incurs costs for a key input that are well above the cost that the ILEC itself incurs for that input. Given that the ILEC's economic costs of transport are in the range of half to two-thirds of prevailing special access rates, then 28 to 36 DS3s would be required to "prove-in" a transport facilities build if the competitive carrier were to achieve cost parity with the ILEC.[12]

[11] If a facility is not build, not only is the interoffice transport required but a connection from the final LSO to the switch location (i.e., a high capacity channel term or entrance facility) is also required.

[12] If the unit cost alternative were 50% to 67% lower, then the revised break-even point is simply the originally calculated break-even point divided by the preceding price ratio.

Attachment B

ESTIMATING THE COST OF LOOP CONSTRUCTION

Introduction:

Loop facilities are one of the most basic components of a telecommunications network and are used in the provision of all services, whether switched or dedicated. These facilities provide the physical connection between the customer location and the network of the serving carrier. Because much of the investment is dedicated to one or a very small number of customers, and because the facilities have very high initial costs to deploy, only the very largest customer locations (in terms of service demand) can be economically reached through an over-build. The focus of this paper is upon such "large" customer locations. As shown below, a CLEC must have the potential to serve a large number of buildings (about 20) within a consolidated geographic area, with each building generating at least 3 DS3s of demand before a build is economic. Even then, serving the location will involve significant investment – approximately $6.7M for the building ring, plus approximately $3M for the premises and node equipment. And all of this analysis assumes that the CLEC considering the build can reach the buildings in the area with rights of way and building access comparable to the ILEC.

Before discussing the costs of building it is first important to share a common understanding of the general architecture of the outside plant employed by a CLEC. Figure 1 below provides a general representation of this plant:

Typical Configuration of "Local" Fiber Rings

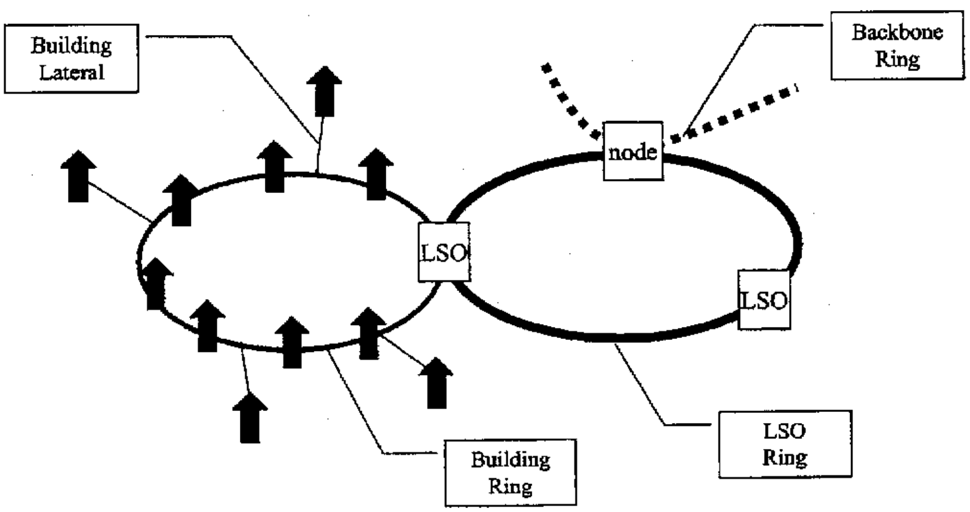

Figure 1.

A self-provided CLEC "loop" is actually composed of two to three interconnected facilities. The first is the LSO Ring. This ring connects the network locations (*e.g.*, facility/switch nodes and collocations) within a metropolitan area. The cost of connecting these locations is discussed in a related paper quantifying the costs of transport and will not be repeated here.[1] The LSO Ring interfaces with two other ring types: backbone rings and building rings. Because the loop is constructed to reach the service provider's network, which effectively starts and ends at the backbone ring (for dedicated services) or the switch connecting to the backbone ring (for switched services), the costs of the backbone ring are not relevant to the discussion of loop costs. On the other hand, the building rings are a significant consideration in quantifying loop costs. A Building Ring extends the CLEC network from a very aggregated demand point (*i.e.*, the facility-based collocation in an LSO) to (or near) customers' premises.

The final component of the loop infrastructure is the Customer Lateral. When a Building Ring is constructed, every effort is made to run the ring facility directly though critical buildings. In fact, Building Rings tend to be about 30 route miles long and tend to have 10 to 15 buildings on each.[2] Whether or not a building is placed on a ring is highly dependent upon factors such as the following: (1) whether the location was identified as a "high volume" location early enough in the planning to permit its inclusion, (2) whether access to the building could be secured from the landlord in a timeframe consistent with the overall project time line, and (3) whether building access costs were not judged prohibitive. If a building is not placed directly on the building ring as part of the initial build, it may still be possible to add a building at a later point. Such buildings are added by extending a short segment of fiber that is spliced to the ring and extends to the building. Because these segments are not shared with any other users other than the single building connected, and because the segment generally is not protected via diverse routing of redundant facilities, laterals tend to be very short.[3]

To recap: an LSO Ring is a highly aggregated facility that is shared among a wide variety of customer locations and services; a Building Ring is a facility whose use is shared among 10 to 15 buildings; a Customer Lateral is a facility useful only for the particular building connected.

In order to quantify the cost of these loops, a general understanding of the essential equipment components is important. The key components are shown in Figure 2:

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[1] See Attachment A to this Submission, referred to herein as the Transport *ex parte*.

[2] These characteristics tend to vary by specific metropolitan area. However, the AT&T Outside Plant Engineering organization believes these parameters reasonably reflect the conditions across its local markets. Other carriers may have different experiences due to different market strategies and less robust local fiber facility deployment.

[3] AT&T seeks to limit laterals to less than 500 feet in order to contain customer-dedicated investment and to reduce the risk of facility damage (*i.e.*, the longer the facility the greater the probability that some form of mechanical harm may be experienced).

Typical Configuration of An On-Net Building "Loop"

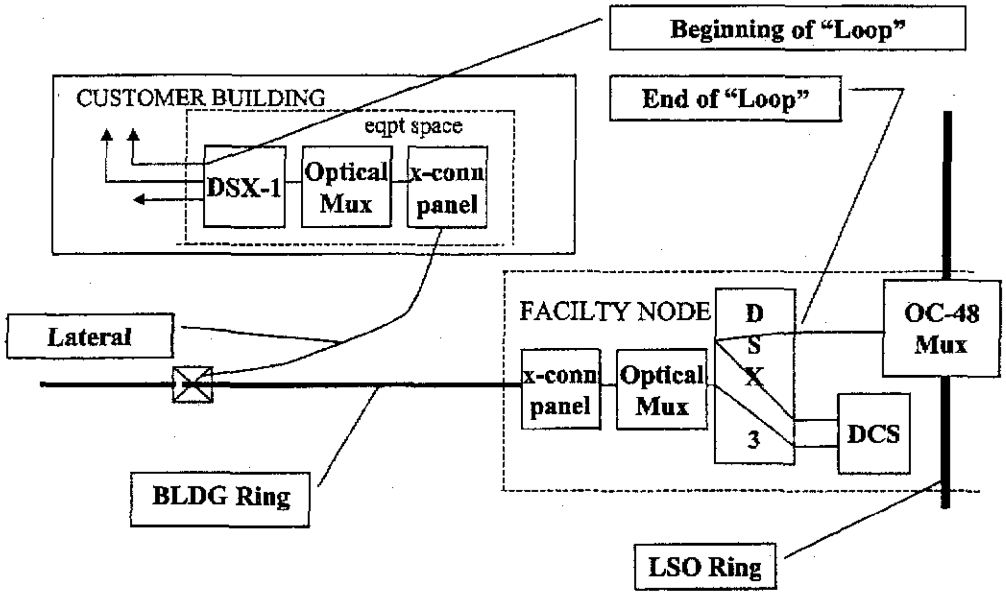

Figure 2

The functions of the individual components are relatively straightforward:

DSX-1 or DSX-3: Provides a cross-connection point between facilities operating at the DS1 level (DSX-1) or the DS3 level (DSX-3) without requiring that the facility be de-multiplexed to a lower bandwidth. The DSX frames allow relatively non-disruptive addition and removal of equipment, reasonable physical test access, and provide efficient means for cross-connecting circuits.

Optical Mux (and OC-48 Mux): Transmission equipment that aggregates (*i.e.*, multiplexes or "muxes") multiple lower bandwidth services onto a very high bandwidth facility. An Optical mux generally also supports signal conversions between optical and electrical based transmissions.

Digital Cross-Connection System (DCS): Provides for the grooming of facilities without the need to de-multiplex and re-multiplex the individual "channels" of the connecting facilities. For example, it permits the moving of DS1 #5 contained within DS3 #2 in facility segment A to DS1#17 within DS3 #3 on facility segment B. DCS allows improved utilization of very high capacity facilities.

X-conn Panel (or Fiber Distribution Panel): Provides a point of termination and cross-connection of a fiber facility to transmission equipment that manages the communications carrier within a fiber conductor.

Quantification of Cost of Self-provided Loops:

The cost of a self-provided loop can be conveniently analyzed based upon the following categories:

Lateral facility
Building Ring facility
LSO Ring transport
Building location costs
Node costs (interfacing between a Building Ring and an LSO Ring)

Each of these categories is reasonably subdivided into subcategories of investment costs, maintenance costs, and taxes.

Customer Lateral Facility:

As discussed above, the lateral facility is a short fiber that is dedicated to an individual building connected to a Building Ring. Because CLEC-provided loop facilities are typically placed in dense metropolitan areas, such facilities are virtually always placed in an underground structure. Consistent with the LSO Ring analysis, the building connected will be in one of the four most dense cells as defined in the HAI 5.2 model. Accordingly, the unit cost for the fiber lateral is the same as that underlying the analysis of the LSO Ring costs and is $40.99 per foot and $0.033 per strand foot. A twelve-strand fiber is assumed although this assumption does not materially impact the overall cost of the fiber lateral. Accordingly, the gross investment is $20,690[4] and converts to an investment cost of $342 per month.[5] As with the LSO transport model, a 0.61% per year per gross investment dollar maintenance assumption is applied, and 5% of investment and maintenance costs were added to cover non-income taxes. This results in a maintenance expense of about $11 and tax expense of $17 per month associated with the lateral. The total cost is $370 per month.[6]

[4] The actual calculation is as follows: 500 feet* ($40.99/foot+ 12 strands *($0.033/strand-foot)).

[5] The calculation is the same as employed in the LSO transport cost analysis in the Transport *ex parte* and employs the EXCEL PMT function. The actual calculation is PMT(cost of money, recovery period, gross investment*(1-salvage)). The cost of money employed in this analysis is based upon the pre-tax cost of money employed in the LSO transport cost analysis (*i.e.*, 14.24%) increased by 20% to account for the greater risk associated with the loop plant investment (*i.e.*, the actual cost of money employed is 17.09% per year). The recovery period for the building-dedicated investment is 6 years. Net salvage is the same as that used for fiber facilities and is identical to that underlying the LSO transport analysis for underground fiber (*i.e.*, -14.58%).

[6] If the lateral life is assumed to be the same as that of an underground fiber, the overall cost declines to $91 per month, distributed $76 for investment recovery, $11 for maintenance and $4 taxes. However, such a long life is unreasonably conservative given the volatile nature of demand from a single customer location (customer contracts typically run only 2 to 3 years). Accordingly, even the 6-year figure assumes at least one contract renewal, and the figure presented is this footnote is offered strictly for sensitivity analysis purposes.

Building Ring:

As stated above, Building Rings are typically about 30 miles in total length and connect 10 to 20 buildings to the LSO transport node. As with the Customer Lateral, the Building Ring is assumed to be an underground fiber placed within one of the four highest density zones of the HAI model. Accordingly, the same unit cost per foot and per strand is employed as was used for determining the investment cost of the lateral. The cost modeling assumes 2 strands per building. Accordingly, the gross investment in the Building Ring is about $6.7 million.[7] Because this facility is shared among 20 buildings, the assigned investment cost per building is $334,952 of gross investment. Note that the maximum number of buildings typically placed on a ring was employed. As a result, this generates the lowest likely gross investment attribution.

A consistent approach was used to develop the monthly cost for the Building Ring component as was employed for the Customer Lateral. The only exception is that the life for the Building Ring was assumed to be that of underground fiber, *i.e.*, about 26 years, rather than the 6-year life for the lateral. While the life of an individual lateral may be relatively short, the assumption here is that as individual buildings drop off the ring (due to lack of demand) others are added to replace them, resulting in a stable number of on-net buildings. The monthly investment recovery cost is $5,533 and the associated monthly maintenance and tax-related costs are $170 and $285, respectively. The total Building Ring assigned cost is, therefore, $5,988 per month per building.

LSO Ring Transport:

The last component of physical connectivity associated with the CLEC loop is the LSO Ring transport. This is the same connectivity that would be employed by any other service configuration or loop connecting to the CLEC network through the node. As such, the cost previously developed for the Transport *ex parte* is employed here. Because the costs are basically fixed at the node, the issue is simply one of determining the total DS3 volume presented to the node and then determining the number of DS3s that an individual building contributes. For the purposes of this analysis, the fixed costs of the node are assumed to be the same as that developed in the Transport *ex parte* or $32,557 per month. Furthermore, in order to present the most conservative evaluation of the cost of a CLEC loop, the analysis assumes that the facility is used to 90% of capacity, or $740 per DS3 per month.

Customer Location Costs:

The customer location costs are primarily equipment and space related. The equipment costs are related to those elements shown at the customer location in Figure 2: the DSX-1, the Optical Mux and the Fiber Distribution Panel (FDP). The FDP investment is the

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[7] The calculation is as follows: 30 miles * 5280 ft/mi*($40..99/ft + 20 buildings*(2 strands/building)*($0.033/strand-foot).

same as that used in the Transport *ex parte*, *i.e.*, $1000 per panel and 2 connections per multiplexer at $60 per connection ($1120 per connected panel). The Optical Mux cost is that for an OC-3 and is found in the HAI inputs (p. 96). The common cost is $20,000 plus $500 per 7 DS1s, up to a maximum of 84 DS1s. No cost was available in HAI for the DSX-1; however, costs were available on the ADC website for such equipment (www.adc.com). Specifically, a DSX-1 shelf with a capacity of 84 DS1s is priced at $2,085 (see item: Di M2GU1). Most customer building connections are at the OC-3 level. Accordingly, the investment at a customer premise is $23,205 plus $500/7 DS1s. This converts to a monthly cost of $407 plus $9 for every 7 DS1s active.[8] Thus, the total monthly investment cost for equipment at a customer location is in the range of $416 to $513 if from 1 to 84 DS1 (84 DS1s equal 3 fully utilized DS3s) are active. This investment cost results in a maintenance cost of $40 to $49 and taxes of $23 to $28 per month.

The final cost that must be considered is that for space rental. For the purposes of this analysis, space rental at each building adds about $678 per month.[9] Because no site preparation costs are explicitly included, there is no associated gross investment and, accordingly, no maintenance assumed. Taxes, however, account for $34/month.

The customer location costs are summarized below:

Item	Investment Cost	Maintenance	Other	Taxes	Total
Equipment	$416 to $513	$40 to $49	$0	$23 to $28	$479 to $590
Space	$0	$0	$678	$34	$712
Total at Premise	$416 to $513	$40 to $49	$678	$57 to $62	$1,191 to $1,302

Node Costs:

As shown in Figure 2, the equipment at the node necessary to interface with the LSO Ring transport included a FDP, an OC-3 multiplexer, a DSX-3 cross-connection device and a DCS. The FDP and OC-3 have the same cost, maintenance and tax implications as for the customer premises. The cost of the DCS is found in HAI 5.2 inputs (p. 99) and reflects a gross investment of $30,000 per DS3. HAI inputs do not explicitly list a DSX-3 cost. The same ADC website referenced for the DSX-1 also contains a cost for a DSX-3 (see DSX-4B-24-7A), which is $8,463 and can accommodate 24 DS3s. Because this function is shared at the node, rather than incurring the full cost of a shelf, the study

[8] The equipment lives, gross salvage and maintenance factors are those used for circuit equipment as described in the Transport *ex parte*, *i.e.*, 10.24 years, -1.69% and 2%, respectively.

[9] AT&T's internal records relating to common space rentals indicate a national average monthly cost of $678.30.

assumes that sharing occurs and that the cost will be incurred on a DS3 basis (or $353 per DS3 port). Based on Figure 2, 5 ports are required per DS3 at the node. Accordingly, the gross investment formula for the node is $21,120+$500 per 7 DS1s+ $30,863 per 84 DS3s.[10] Thus, the node costs are largely a function of the number of DS3s delivered from the building. The table below summarizes the node related costs for various demand levels at the building:

Building Volume (DS1s)	investment cost	maintenance	taxes	total
0-7	$922	$87	$50	$1059
8-14	$931	$88	$51	$1070
15-21	$940	$89	$51	$1080
22-28	$949	$90	$52	$1091
29-35	$1516	$144	$83	$1743
36-42	$1525	$145	$83	$1753
43-49	$1534	$145	$84	$1763
50-56	$1543	$146	$84	$1773
57-63	$2110	$200	$115	$2425
64-70	$2119	$201	$116	$2436
71-77	$2128	$202	$116	$2446
78-84	$2137	$203	$117	$2457

[10] The investment cost equation, based on the same life and salvage assumptions applied to the customer node equipment is $355+$558/DS3+$9/7 active DS1. The fixed cost is slightly different compared to the customer premises, because rather than one FDP there are two and the cost of those two are shared among 20 buildings.

With all the components of the cost now established, it is possible to develop the total cost of connecting a building that provides varying levels of demand:

	Monthly Costs By Source						
DS1s active	cust location eqpt	lateral	bldg ring	node eqpt	LSO Backhaul	total	avg cost/DS1
1	$ 1,191	$ 370	$ 5,988	$ 1,059	$ 740	$ 9,348	$ 9,348
7	$ 1,191	$ 370	$ 5,988	$ 1,059	$ 740	$ 9,348	$ 1,335
14	$ 1,201	$ 370	$ 5,988	$ 1,070	$ 740	$ 9,369	$ 669
21	$ 1,211	$ 370	$ 5,988	$ 1,080	$ 740	$ 9,389	$ 447
28	$ 1,221	$ 370	$ 5,988	$ 1,091	$ 740	$ 9,410	$ 336
35	$ 1,231	$ 370	$ 5,988	$ 1,743	$ 1,480	$ 10,812	$ 309
42	$ 1,241	$ 370	$ 5,988	$ 1,753	$ 1,480	$ 10,832	$ 258
49	$ 1,251	$ 370	$ 5,988	$ 1,763	$ 1,480	$ 10,852	$ 221
56	$ 1,261	$ 370	$ 5,988	$ 1,773	$ 1,480	$ 10,872	$ 194
63	$ 1,271	$ 370	$ 5,988	$ 2,425	$ 2,220	$ 12,274	$ 195
70	$ 1,281	$ 370	$ 5,988	$ 2,436	$ 2,220	$ 12,295	$ 176
77	$ 1,291	$ 370	$ 5,988	$ 2,446	$ 2,220	$ 12,315	$ 160
84	$ 1,301	$ 370	$ 5,988	$ 2,457	$ 2,220	$ 12,336	$ 147

Having the total cost and unit cost for a constructed loop now permits an evaluation of when it is reasonable to substitute a build for an alternative facility. Because AT&T has generally been unable to obtain high capacity UNEs, particularly UNE DS1 loops multiplexed onto UNE DS3 facilities, the only possible comparison is to ILEC special access.

Special Access Alternative:

Other than access to a UNE loop, the alternative to constructing loops is a special access configuration from the customer premises to the CLEC network. Given the volumes, the configuration would most likely be a combination of DS1 channel terminations, DS3:1 multiplexing and DS3 interoffice transport. The approximate cost of such a configuration, under a long term pricing arrangement, is approximately the following:

DS1 Channel Term (with NRC amortized): $113 to $127 per DS1/month
DS3 fixed with mux (NRC amortized): $850 to $1,018 per DS3/month
DS3 interoffice mileage: $53 to $73 per mile per DS3/month

The figure represents the approximate rate, averaged across RBOC territories, for a three-year term agreement, and the lower figure represents the average rate for a 5-year term agreement. This is, therefore, a highly conservative estimate of the ability of a CLEC to self-deploy a loop because special access rates are well-above the RBOCs' economic costs. As AT&T has explained, a CLEC needs to achieve costs comparable to the RBOC's economic costs in order to deploy economically its own facilities.

These unit costs can be used to develop the average (per DS1) cost of a special access configuration. The only additional information required is the inter office mileage. For the analysis, the same mileage was used as is employed for the transport *ex parte* (8.94 miles). The following table compares the average cost per DS1 under an overbuild assumption (build) compared to the average cost of obtaining the equivalent capacity as a *DS1 Channel Termination + DS3 interoffice transport* using access obtained under a 5-year term agreement (SA-5) or a 3-year term agreement (SA-3). The table shows that the average cost of the self-provided loops are not less than special access pricing until a third DS3 is activated (each DS3 represents 28 DS1s). At 63 active DS1 loops, the build has a superior cost structure compared to the 3-years special access average unit cost ($195/DS1 compared to $206/DS1). Similarly, compared to the 5-year special access average unit cost, it is not until the 77th DS1 is activated that the build unit cost are an *improvement* over the special access rate ($160/DS1 compared to $165/DS1). All this leads to the conclusion that a CLEC requires at least 3 DS3s of customer demand at a building before a facility build can generally be proven in as financially prudent.

DS1s	build	SA-5	SA-3
7	$ 1,335	$ 302	$ 365
14	$ 669	$ 208	$ 246
21	$ 447	$ 176	$ 206
28	$ 336	$ 160	$ 187
35	$ 309	$ 189	$ 222
42	$ 258	$ 176	$ 206
49	$ 221	$ 167	$ 195
56	$ 194	$ 160	$ 187
63	$ 195	$ 176	$ 206
70	$ 176	$ 170	$ 198
77	$ 160	$ 165	$ 192
84	$ 147	$ 160	$ 187